

Office Action Summary

Application No.

09/966,743

Applicant(s)

KANEKO ET AL

Examiner

John P. Sheehan

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,7-14,16,18 and 20-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7-10,12-14,16,18,20-23 and 25 is/are rejected.
- 7) ☒ Claim(s) 11 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The Examiner acknowledges receipt of the IDS submitted October 10, 2003. In view of the prior art cited in said IDS the allowance of claims 1, 2, 5, 7 to 10, 12 to 14, 16, 18, 20 to 23 and 25 has been withdrawn and the claims are rejected as set forth below.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 2, 5 and 7 to 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

I. The claims recite that "T is at least one element selected from the group consisting of all transition elements" (for example see claim 1, lines 5 and 6). In view of this language, Fe is considered to be optional. However, the claims also

recite that the claimed magnet must contain the "Nd₂Fe₁₄B type compound". In view of the requirement that the claimed magnet must contain the "Nd₂Fe₁₄B type compound" it appears that the claimed magnet must contain Fe. The claims are considered to be indefinite in that on the one hand Fe appears to be optional while on the other hand Fe appears to be required. In view of this conflict in the claims, those skilled in the art would not understand what is claimed even when the claims are read in light of the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 5, 7 to 10, 12 to 14, 16, 18, 20 to 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimura et al. (Fujimura, EPO Document No. 0 255 939, cited in the IDS submitted October 10, 2003) taken in view of The Condensed Chemical Dictionary.

Fujimura teaches a sintered rare earth-transition metal-boron magnet having a composition that overlaps the alloy composition recited in applicants' claims (page 3, lines 45 to 50) containing oxygen in an amount of 10,000 ppm or less (page 6, lines 39). Fujimura also teaches that the alloy composition contains Co and Al as recited in applicants' claims 13 to 16, 18 and 20 to 25 (page 5, line 50 to page 6, line 11).

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Fujimura teaches that the sintered magnet contains crystal grains having the $R_2Fe_{14}B$ structure and a grain boundary phase composed of an R-enriched phase (page 4, lines 21 to 27 and 33 to 39). The Examiner considers that Fujimura's disclosure of an R-enriched phase means that the grain boundary phase contains more rare earth than the $R_2Fe_{14}B$ phase. Fujimura teaches a specific example in which the alloy is crushed and then pulverized to an average particle size of 3 microns (page 7, lines 35 to 37). The particle size taught in this example is encompassed by the particle size of 5 microns or less recited in applicants' claims 12 and 25. Fujimura teaches that the pulverization step is a wet pulverization in a ball mill (page 7, lines 35 to 37). The Examiner considers that applicants' claims 10 and 23 that recite "pulverization in a gas whose oxygen concentration is controlled", but do not recite at what level or how the oxygen concentration is controlled encompass Fujimura's pulverization step. Fujimura teaches that the alloy powder is then charged into a metal mold, aligned in a magnetic field, compacted under pressure and sintered at a temperature of 1040 to 1120°C (page 7, lines 38 to 41). Applicants' claims 9 and 22 recite a two step annealing procedure wherein the compact is held at a temperature in the range of 650 to 1,000 °C for 10 to 240 minutes. It is the Examiner's position that heating a compact from a temperature of 650 °C to a temperature of 1000 °C would take at least 10 minutes and that applicants' claimed 2 step sintering process encompasses heating the compact to the sintering temperature taught by Fujimura. In view of the above discussion, Fujimura is considered to teach a sintered rare earth-transition metal-boron magnet having a

composition that overlaps the composition recited in applicants' claims and which is made by a process which overlaps the process recited in applicants' claims.

The condensed Chemical Dictionary teaches that La is a rare earth element while Y is associated with the rare earths and is separated only with great difficulty, that is, for practical reasons Y is considered to be part of the rare earth group of elements.

The claims and Fujimura differ in that Fujimura does not teach the exact same alloy composition; Fujimura does not explicitly teach that the grain boundary phase contains a higher concentration of Y and optionally La and/or Sc nor does Fujimura teach the diffusion of claims 7 and 20 and the oxide formation of claims 8 and 21.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy proportions taught by Fujimura overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding applicants' claim limitation that the grain boundary phase contains a higher concentration of Y and optionally La and/or Sc, it is the Examiner's position that since, as shown by The Condensed Chemical Dictionary, the definition of rare earth includes La and Y, Fujimura's disclosure of the use of rare earths therefore encompasses Y and La. This fact in combination with Fujimura's disclosure of an R-enriched grain boundary phase means that Fujimura's disclosure encompasses an embodiment wherein the grain boundary phase contains more La and/or Y than the $R_2Fe_{14}B$ phase as recited in applicants' claims.

Regarding claims 7, 8, 20 and 21, it is the Examiner's position that in view of the fact that Fujimura teaches an alloy composition that overlaps the composition recited in the applicants' claims and is processed and sintered in the same manner as applicants' alloy the diffusion of applicants' claims 7 and 20 and the oxide formation of claims 8 and 20 would be expected to occur in Fujimura's process just as it occurs in applicants' process,

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)." see MPEP 2112.01.

Allowable Subject Matter

6. Claims 11 and 24 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

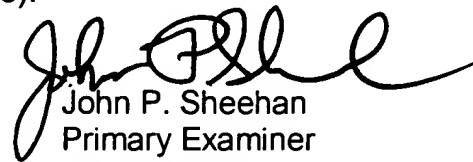
7. The following is a statement of reasons for the indication of allowable subject matter: None of the references alone or combination teach or suggest a method of making a sintered rare earth-transition metal-boron magnet as recited in claims 5 and 18 wherein "the rare earth alloy powder is obtained through pulverization in a gas whose oxygen concentration is controlled to be 20000 ppm or less" as recited in claims 11 and 24.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (6:45-4:30) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John P. Sheehan
Primary Examiner
Art Unit 1742

jps